Laura C. H. Gerber

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HIGHLIGHTS

- Synthetic chemist that has developed organic and inorganic compounds for a range of applications
- Skilled in molecular and materials design based in an understanding of structure-function relationships
- Strong written and oral communication skills: co-author of nine peer reviewed publications and experience presenting to audiences in and out of field

EDUCATION

Massachusetts Institute of Technology, Cambridge, MA 2013
Ph. D. in Inorganic Chemistry

Brandeis University, Waltham, MA 2007
B.A./M.S. in Chemistry and Minor in Environmental Studies

EXPERIENCE

Molecular Foundry, Lawrence Berkeley National Laboratory, 2013 - Present
Postdoctoral Researcher with Joint Center for Energy Storage Research
Advisor: Dr. Brett A. Helms

- Designed and synthesized organic materials to improve conductivity in batteries
- Performed density functional theory calculations through collaboration with theorist to understand fundamental properties of materials
- Assessed properties of organic materials by UV-visible spectroscopy, cyclic voltammetry, and X-ray spectroscopy

Massachusetts Institute of Technology, Graduate Research 2008 - 2013
Advisor: Prof. Richard R. Schrock

- Designed olefin metathesis catalysts for selective reactions, especially ring opening metathesis polymerization
- Developed novel synthetic routes for olefin metathesis catalysts allowing new ligands to be incorporated, analyzed compounds using x-ray crystallography, and NMR, IR, and UV-Visible spectroscopy, several projects in the group now utilize the findings
- Studied reaction mechanism to understand catalyst selectivity for polymerization by variable temperature NMR spectroscopy
- Trained and mentored an undergraduate student in organometallic synthesis

Fulbright Fellowship, University of Bergen, Norway 2007 – 2008
Advisor: Prof. Reiner Anwander

- Studied reactivity of trimethyl and heterobimetallic rare earth metal complexes
- Presented research at a department seminar and for Fulbright Fellows in all fields

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Brandeis University, Undergraduate Research 2005 - 2007
Advisor: Prof. Oleg V. Ozerov

- Synthesized transition metal complexes containing rare bonding modes including the first bis(methylidene) complex
- Presented findings at an American Chemical Society meeting and at an undergraduate research symposium

University of Notre Dame, Environmental Molecular Science Institute 2005
Undergraduate Research
Advisor: Prof. Patricia Maurice

- Studied the sorption and dissolution mechanisms of siderophores with montmorillonite using a variety of techniques including UV-visible spectroscopy and powder x-ray diffractometry

LEADERSHIP

Chemistry Student Seminar, MIT 2011 - Present
Organizer of a weekly student run seminar series. Recruited speakers, obtained funding, and organized logistics.

Teaching Assistant, General and Inorganic Chemistry Laboratory Courses, MIT 2008 - 2009
Prepared pre-lab lectures, quizzes, optimized experiments, and assisted students (15 students for inorganic lab and 60 for general chemistry lab) during lab hours.

Undergraduate Departmental Representative, Brandeis Univ. Chemistry Dept. 2005 – 2007
Planned informational and community events. Served as a liaison between the students and department

HONORS AND AWARDS

Fulbright Fellowship 2007 - 2008
Awarded by the U.S. Department of State

Melvin E. Snider Prize in Chemistry 2007
Awarded by the Brandeis University Dept. of Chemistry

Presidential Scholarship 2003 - 2007
Awarded by Brandeis University

COMMUNITY ACTIVITIES

Chemistry Outreach Program, MIT 2009 - 2013
Volunteer to visit high school science classes to demonstrate science concepts

Cambridge Symphony Orchestra, Cambridge, MA 2011 - 2013
Member of a community orchestra that performs for local events in the Boston area

SKILLS

Manipulation of air-sensitive compounds by drybox and Schlenk technique; 1D, 2D, multinuclear, and variable temperature NMR spectroscopy; x-ray crystallography; IR and UV-Visible spectroscopy.

PROFESSIONAL AFFILIATIONS

American Chemical Society, Division of Inorganic Chemistry, Northeastern Section of the American Chemical Society, MIT Women in Chemistry

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PUBLICATIONS

Gerber, L. C. H.; Schrock, R. R. **Synthesis of Methylidene Complexes that Contain a 2,6-Dimesitylphenylimido Ligand and Ethenolysis of 2,3-Dicarbomethoxynorbornadiene.** *Organometallics*, **2013**, *32*, 5573 – 5580.

Yuan, J.; Schrock; R. R.; Gerber, L. C. H.; Müller, P.; Smith, S. **Synthesis and ROMP Chemistry of Decafluoroterphenoxide Molybdenum Imido Alkylidene and Ethylene Complexes.** *Organometallics,* **2013**, *32*, 2983 – 2992.

Gerber, L. C. H.; Schrock, R. R.; Müller, P. **Molybdenum and Tungsten Monoalkoxide Pyrrolide (MAP) Alkylidene Complexes That Contain a 2,6-Dimesitylphenylimido Ligand.** *Organometallics*, **2013**, *32*, 2373 – 2378.

Flook, M. M.; Börner, J.; Kilyanek, S. M.; Gerber, L. C. H.; Schrock, R. R. **Five-Coordinate Rearrangements of Metallacyclobutane Intermediates during Ring-Opening Metathesis Polymerization of 2,3-Dicarboalkoxynorbornenes by Molybdenum and Tungsten Monoalkoxide Pyrrolide Initiators.** *Organometallics*, **2012**, *31*(17), 6231-6243.

Gerber, L. C. H.; Schrock, R. R.; Müller, P.; Takase, M. K. **Synthesis of Molybdenum Alkylidene Complexes That Contain the 2,6-Dimesitylphenylimido Ligand.** *J. Am. Chem. Soc.*, **2011**, *133* (45), 18142 – 18144.

Flook, M. M.; Gerber, L. C. H.; Debelouchina, G. T.; Schrock, R. R. **Z-Selective and Syndioselective Ring-Opening Metathesis Polymerzation (ROMP) Initiated by Monoaryloxidepyrrolide (MAP) Catalysts**. *Macromolecules,* **2010**, *43* (18), 7515 – 7522.

Takaoka, A.; Gerber, L. C. H.; Peters, J. C. **Access to Well-Defined Ruthenium(I) and Osmium(I) Metalloradicals**. *Angewandte Chemie, International Edition*, **2010**, *49* (24), 4088.

Gerber, L. C. H.; Le Roux, E.; Törnroos, K. W.; Anwander, R. **Elusive Trimethyllanthanum: Snapshots of Extensive Methyl Group Degradation in La-Al Heterobimetallic Complexes**. *Chemistry: A European Journal*, **2008**, *14*, 9555 – 9564.

Gerber, L. C. H.; Watson, L. A.; Parkin, S.; Weng, W.; Foxman, B. M.; Ozerov, O. V. **A Bis(methylidene) Complex of Tantalum Supported by a PNP Ligand.** *Organometallics*, **2007**, *26* (20), 4866-4868.

PRESENTATIONS

Gerber, L. C. H. **Exploration of Steric Bulk in Molybdenum and Tungsten Olefin Metathesis Catalysts.** Inorganic Seminar Series, Massachusetts Institute of Technology Department of Chemistry, December 19, 2012.

Gerber, L. C. H.; Schrock, R. R. **Molybdenum and tungsten olefin metathesis catalysts containing a 2,6-dimesitylphenylimido ligand.** 244th ACS National Meeting & Exposition, Philadelphia, PA, United States, August 19-23, 2012.

Gerber, L. C. H.; Schrock, R. R. **Molybdenum olefin metathesis catalysts containing a 2,6-dimesitylphenylimido ligand.** 242nd ACS National Meeting & Exposition, Denver, CO, United States, August 28-September 1, 2011.

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Gerber, L. C. H.; Schrock, R. R. **Mechanistic studies of ring-opening metathesis polymerization with molybdenum monoaryloxide monopyrrolide catalysts.** 240th ACS National Meeting, Boston, MA, United States, August 22-26, 2010.

Litlabø, R., Gerber, L. C. H., Anwander, R. **Reactivity of Homoleptic Lanthanide(III) Tetraalkylaluminate Complexes.** Seminar in Inorganic and Nanochemistry. University of Bergen. May 15, 2008.

Gerber, L. C. H. **Lanthanide Chemistry**. Presentation at Meeting for U.S. Fulbright Fellows in Norway, February 14, 2008.

Gerber, L. C. H.; Ozerov, O. V.; Weng, W.; Foxman, B. M. **Synthetic approaches to pincer complexes with tantalum-carbon multiple bonds.** 232nd ACS National Meeting, San Francisco, CA, United States, Sept. 10-14, 2006.

Gerber, L. C. H.; Ozerov, O. V.; Weng, W.; Foxman, B. M. **New Tantalum Pincer Compounds: En route to Group 5 Alkylidynes.** Research Experience for Undergraduates Symposium. Brandeis University. August 10, 2006.

Gerber, L. C. H.; Haack, E.; Maurice, P. **The Sorption of Acetohydroxamic Acid by Montmorillonite.** Research Experience for Undergraduates Symposium. Environmental Molecular Science Institute, University of Notre Dame. August 5, 2005.